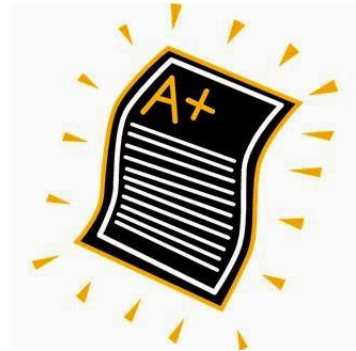


2015

Designing Assessments with STAAR Quality



Quality Assessment Rubric

1. **DATA**: A Look at the Data
 - a. Find your strengths and weaknesses.
 - b. Does the material spiral?
 - c. Is it a Readiness or Supporting standard?
 - d. Decide how many items will be needed to determine mastery.
 - e. Use this information to build the blueprint.
2. **CONTENT**: Identifying Know and Do
 - a. Break down the standards determining what students must KNOW and be able to DO to be successful with the SE.
 - b. Determine what content will be covered on the Assessment.
 - c. Decide if the content will change the number of items for an SE.
 - d. Add this information to the blueprint.
3. **PROCESSES**: Identifying Processes and Skills
 - a. Determine which process skills are a natural fit with the content you are teaching.
 - b. Bundle content and skills TEKS for instruction and assessment (dual-coded items).
 - c. Add the process skill to the blueprint.
4. **REVIEW EXAMPLES**: What are we looking for in an item?
 - a. Look at released STAAR tests to decide what the state is looking for?
 - b. How are the items designed?
 - c. Using the blueprint create items for your assessment
 - i. Know your TEKS and concentrate on academic language and content area vocabulary.
 - ii. Pay attention to what we have learned from the STAAR Released Items
5. **ITEM AND TEST LEVELING**: Are items written at the appropriate cognitive level based on the TEKS?
 - a. Make sure your items match the cognitive and procedural difficulty of the TEKS.
 - b. Make sure that your cognitive test make up is approximately 70% Low-Medium and 30% High.
 - c. Make sure that your procedural test make up is approximately 60% Low-Medium and 40% High.
 - d. Add rigorous questions where appropriate
 - e. Edit items to ensure assessment is at correct cognitive and procedural level.

- 6. ITEM DESIGN: Do test items follow best practices in item design?**
- a. Check to see if the item is properly aligned to CPG/Scope and Sequence for the units covered during this benchmark period. (Pacing Guide)**
 - b. Check to make sure that the item TEKS SE is on the test blueprint**
 - c. Check to see if the item is aligned to the TEKS SE.**
 - i. Check for content alignment**
If the TEKS SE is focused on content, then be sure that the item tests that particular content.
 - ii. Check for alignment to the “verb” in the SE.**
The item should not test at a higher level than the verb.
 - iii. Check for skill alignment**
If the TEKS SE is asking for a specific skill to be used make sure that skill is what is being tested.
 - d. Check for correct answer on key.**
 - e. Check for “Level” on the answer key. Check for typos and grammar problems.**
 - f. Check for “unreadable” graphics.**
 - g. Check to make sure that graphics and reading selections are at the appropriate level.**

ASSESSMENT BLUEPRINT

SE	Readiness/ Supporting	SE Content Specificity	Number of Items Needed
	R / S		
	R / S		
	R / S		
	R / S		
	R / S		
	R / S		
	R / S		
	R / S		
	R / S		
	R / S		
	R / S		

ASSESSMENT BLUEPRINT

Assessment Item #	Content SE	Content Specificity	Process SE	Procedural Difficulty			Conceptual Difficulty		
				Low	Medium	High	Low	Medium	High
1.									
2.									
3.									
4.									
5.									
6.									
7.									
8.									
9.									
10.									
11.									
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30.									
31.									
32.									
33.									
34.									
35.									
36.									
37.									
38.									
				60%	40%		70%		30%

**Arten Middle School
Science Grade 8 Data**

TEKS SE	2014 Unit 2	2014 Unit 3	2012 STAAR	2013 STAAR	2014 STAAR
8.1A				72.7%	
8.2A			77.5%		
8.2B					56.0%
8.2D				76.2%	65.2%
8.2E	45.3%		66.9%	58.4%	70%
8.3A				66.7%	
8.3B			64.7%	65.0%	63.4%
8.3D			68.1%		76.6%
8.4A				80.7%	
8.5A	85.1%	86.2%	57.9%	61.6%	67.0%
8.5B	78.2%		49.1%	68.4%	71.0%
8.5C	76.3%		60.9%	59.4%	65.2%
8.5D		68.1%	73.4%	64.4%	66.1%
8.5E		76.3%	68.1%	72.1%	70.1%
8.5F		82.1%	64.1%	70.8%	
7.5C		66.4%			58.3%
7.6A	67.1%		46.9%	79.1%	45.7%
7.6B	82.1%				83.1%
6.5C		74.6%	72.1%		48.6%
6.6A	80.4%				80.1%
6.6B		81.2%	71.6%	80.7%	

TEST DATA

Standard	Unit 1	Unit3	STAAR 2013	STAAR 2014	Average
8.10A	78%	82%	64%	68%	73%
8.10B	62%	58%	46%	53%	55%
8.10C	76%	72%	78%	82%	77%

Science Grade 8 YAG – 6 weeks

First Semester	Second Semester
1st Six Weeks	4th Six Weeks
<p><u>Unit 01: Science Safety and Procedures (5 days for the entire unit)</u> 8.1A, 8.4A, 8.4B</p> <p><u>Unit 02: Atoms (8 days for the entire unit)</u> 8.2C, 8.2E, 8.3B, 8.3C, 8.3D, 8.4A, 8.5A, 8.5B</p> <p><u>Unit 03: Periodic Table (9 days for the entire unit)</u> 8.2E, 8.3B, 8.4A, 8.5B, 8.5C</p>	<p><u>Unit 08: Climatic Interactions (10 days for the entire unit)</u> 8.2A, 8.2B, 8.2C, 8.2E, 8.3D, 8.4A, 8.10A, 8.10B, 8.10C</p> <p><u>Unit 09: Earth Cycles (10 days for the entire unit)</u> 8.2E, 8.3B, 8.3C, 8.4A, 8.7A, 8.7B, 8.7C</p> <p><u>Unit 10: Light Years and Theories (5 days for the entire unit)</u> 8.2C, 8.3A, 8.3B, 8.3C, 8.3D, 8.4A, 8.8D, 8.8E</p>
2nd Six Weeks	5th Six Weeks
<p><u>Unit 04: Chemical Formulas, Equations, and Reactions (15 days for the entire unit)</u> 8.1A, 8.2C, 8.2E, 8.3B, 8.3C, 8.4A, 8.5D, 8.5E, 8.5F</p> <p><u>Unit 05: Force and Motion (8 days for the entire unit)</u> 8.1A, 8.2B, 8.2C, 8.2D, 8.2E, 8.3A, 8.3B, 8.4A, 8.6A, 8.6B</p>	<p><u>Unit 11: Characteristics of the Universe (13 days for the entire unit)</u> 8.2E, 8.3A, 8.3B, 8.3C, 8.3D, 8.4A, 8.8A, 8.8B, 8.8C</p> <p><u>Unit 12: Interdependence Among Living Systems (12 days for the entire unit)</u> 8.1B, 8.2A, 8.2E, 8.3A, 8.3B, 8.4A, 8.11A, 8.11B, 8.11C, 8.11D</p>
3rd Six Weeks	6th Six Weeks
<p><u>Unit 06: Newton's Laws (10 days for the entire unit)</u> 8.1A, 8.2A, 8.2C, 8.2E, 8.3B, 8.3C, 8.3D, 8.4A, 8.6C</p> <p><u>Unit 07: Forces that Change the Earth (15 days for the entire unit)</u> 8.2E, 8.3A, 8.3B, 8.3C, 8.3D, 8.4A, 8.6C, 8.9A, 8.9B, 8.9C</p>	<p><u>Unit 13: Student Designed Experiments (20 days for the entire unit)</u> 8.1A, 8.1B, 8.2B, 8.2C, 8.2D, 8.2E, 8.3A, 8.4A, 8.4B</p>

STAAR Grade 8 Science Assessment

Reporting Category 1: Matter and Energy

The student will demonstrate an understanding of the properties of matter and energy and their interactions.

Grade 8

- (8.5) **Matter and energy.** The student knows that matter is composed of atoms and has chemical and physical properties. The student is expected to
- (A) describe the structure of atoms, including the masses, electrical charges, and locations, of protons and neutrons in the nucleus and electrons in the electron cloud;
Readiness Standard
 - (B) identify that protons determine an element's identity and valence electrons determine its chemical properties, including reactivity;
Readiness Standard
 - (C) interpret the arrangement of the Periodic Table, including groups and periods, to explain how properties are used to classify elements; *Readiness Standard*
 - (D) recognize that chemical formulas are used to identify substances and determine the number of atoms of each element in chemical formulas containing subscripts; *Readiness Standard*
 - (E) investigate how evidence of chemical reactions indicate that new substances with different properties are formed; and
Readiness Standard
 - (F) recognize whether a chemical equation containing coefficients is balanced or not and how that relates to the law of conservation of mass. *Supporting Standard*

Grade 7

- (7.5) **Matter and energy.** The student knows that interactions occur between matter and energy. The student is expected to
- (C) diagram the flow of energy through living systems, including food chains, food webs, and energy pyramids.
Supporting Standard
- (7.6) **Matter and energy.** The student knows that matter has physical and chemical properties and can undergo physical and chemical changes. The student is expected to
- (A) identify that organic compounds contain carbon and other elements such as hydrogen, oxygen, phosphorus, nitrogen, or sulfur; and
Supporting Standard
 - (B) distinguish between physical and chemical changes in matter in the digestive system. *Supporting Standard*

Grade 6

- (6.5) **Matter and energy.** The student knows the differences between elements and compounds. The student is expected to
- (C) differentiate between elements and compounds on the most basic level. *Supporting Standard*
- (6.6) **Matter and energy.** The student knows matter has physical properties that can be used for classification. The student is expected to
- (A) compare metals, nonmetals, and metalloids using physical properties such as luster, conductivity, or malleability; and
Supporting Standard
 - (B) calculate density to identify an unknown substance.
Supporting Standard

Scientific Investigation and Reasoning Skills

These skills will not be listed under a separate reporting category. Instead, they will be incorporated into at least 40% of the test questions in reporting categories 1–4 and will be identified along with content standards.

Grade 8

- (8.1) **Scientific investigation and reasoning.** The student, for at least 40% of instructional time, conduct laboratory and field investigations following safety procedures and environmentally appropriate and ethical practices. The student is expected to
- (A) demonstrate safe practices during laboratory and field investigations as outlined in the Texas Safety Standards; and
 - (B) practice appropriate use and conservation of resources, including disposal, reuse, or recycling of materials.
- (8.2) **Scientific investigation and reasoning.** The student uses scientific inquiry methods during laboratory and field investigations. The student is expected to
- (A) plan and implement comparative and descriptive investigations by making observations, asking well-defined questions, and using appropriate equipment and technology;
 - (B) design and implement comparative and experimental investigations by making observations, asking well-defined questions, formulating testable hypotheses, and using appropriate equipment and technology;
 - (C) collect and record data using the International System of Units (SI) and qualitative means such as labeled drawings, writing, and graphic organizers;
 - (D) construct tables and graphs, using repeated trials and means, to organize data and identify patterns; and
 - (E) analyze data to formulate reasonable explanations, communicate valid conclusions supported by the data, and predict trends.

- (8.3) **Scientific investigation and reasoning.** The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions and know the contributions of relevant scientists. The student is expected to
- (A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;
 - (B) use models to represent aspects of the natural world such as an atom, a molecule, space, or a geologic feature;
 - (C) identify advantages and limitations of models such as size, scale, properties, and materials; and
 - (D) relate the impact of research on scientific thought and society, including the history of science and contributions of scientists as related to the content.
- (8.4) **Scientific investigation and reasoning.** The student knows how to use a variety of tools and safety equipment to conduct science inquiry. The student is expected to
- (A) use appropriate tools to collect, record, and analyze information, including lab journals/notebooks, beakers, meter sticks, graduated cylinders, anemometers, psychrometers, hot plates, test tubes, spring scales, balances, microscopes, thermometers, calculators, computers, spectrometers, timing devices, and other equipment as needed to teach the curriculum; and
 - (B) use preventative safety equipment, including chemical splash goggles, aprons, and gloves, and be prepared to use emergency safety equipment, including an eye/face wash, a fire blanket, and a fire extinguisher.

Quality Assessment Rubric

- Know your TEKS and concentrate on academic language and content area vocabulary.
- Pay attention to what we have learned from the STAAR Released Items
- Bundle content and skills TEKS for instruction and assessment (dual-coded items).
- Make sure that the content concepts and skills of the item are tightly aligned to the TEKS SEs.
- Make sure that your items match the cognitive and procedure difficulty of the TEKS.
- Make sure that your cognitive test make up is approximately 70% Low-Medium and 30% High
- Make sure that your procedural test make up is approximately 60% Low-Medium and 40% High
- Add rigorous questions where appropriate

Item Review:

1. Check to see if the item is properly aligned to CPG/Scope and Sequence for the units covered during this benchmark period. (Pacing Guide)
2. Check to make sure that the item TEKS SE is on the test Blueprint
3. Check to see if the item is aligned to the TEKS SE.
 - a. Check for content alignment
 - i. If the TEKS SE is focused on content then be sure that the item tests that particular content..
 - b. Check for alignment to the “verb” in the SE.
 - i. The item should not test at a higher level than the verb.
 - c. Check for skill alignment
 - i. If the TEKS SE is asking for a specific skill to be used make sure that that skill is what is being tested.
 - ii. Some items will test both skills and content as is the case on TAKS. Again, check for alignment to the SE.
2. Check for correct answer on key.
3. Check for “Level” on the answer key. Check for typos and grammar problems.
4. Check for “unreadable” graphics.
5. Check to make sure that graphics and reading selections are at the appropriate level.